

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	("4798818").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/13 11:23
L2	27	("2669590"   "2787646"   "2889379"   "3178483"   "3178484"   "3650987"   "3739036"   "3752850"   "4078007"   "4138355"   "4147733"   "4220608"   "4465786").PN. OR ("4798818"). URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/13 11:24
S1	780	(502/224).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/12 13:00
S2	106	S1 and (metal\$3 with fluoride)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:09
S3	1	S2 and (precursor same (alkoxide or enolate or "carboxylic acid"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:12
S4	1	S2 and (precursor same (alkoxide or "carboxylic acid"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:02
S5	542	(precursor same (alkoxide or enolate or carboxylic)) and (metal\$3 with fluoride)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:04
S6	210	S5 and (hf or "hydrogen fluoride" or "hydrofluoric acid")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:10
S7	16	S5 and "fluorinating agent"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:06

## EAST Search History

S8	4388	metal\$3 with fluoride with catalyst	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:09
S9	48	S8 and (precursor same (alkoxide or enolate or "carboxylic acid"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:09
S10	23	S9 and (hf or "hydrogen fluoride" or "hydrofluoric acid")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:12
S11	1260	catalyst with ("metal fluoride" or "metallic fluoride")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:12
S12	7	S11 and (precursor same (alkoxide or enolate or "carboxylic acid"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:15
S13	1139053	(fluoride or f) with ((zinc or zn) or (tin or sn) or (copper or cu) or (iron or fe) or (chromium or cr) or (vanadium or v) or (magnesium or mg) or (aluminum or al))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:37
S14	6588	S13 and "metal fluoride"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:58
S15	3696	"metal fluoride" with ((zinc or zn) or (tin or sn) or (copper or cu) or (iron or fe) or (chromium or cr) or (vanadium or v) or (magnesium or mg) or (aluminum or al))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:38
S16	5737	"metal fluoride" same ((zinc or zn) or (tin or sn) or (copper or cu) or (iron or fe) or (chromium or cr) or (vanadium or v) or (magnesium or mg) or (aluminum or al))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:52
S17	46	S16 and (precursor same (alkoxide or enolate or "carboxylic acid"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:43

## EAST Search History

S18	1277	S16 and (solvent same (alcohol\$2 or ether or ketone or alkane or (acid with (formic or acetic or propionic))))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:48
S19	179	S18 and (catalyst with metal\$3 with fluoride)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:49
S20	159	S18 and (catalyst with ("metal fluoride" or "metallic fluoride"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:51
S21	2584	(502/225-228,231).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/12 13:51
S23	1732	S21 and ((zinc or zn) or (tin or sn) or (copper or cu) or (iron or fe) or (chromium or cr) or (vanadium or v) or (magnesium or mg) or (aluminum or al))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:57
S24	525	(423/491).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/12 13:55
S25	318	S24 and ((zinc or zn) or (tin or sn) or (copper or cu) or (iron or fe) or (chromium or cr) or (vanadium or v) or (magnesium or mg) or (aluminum or al))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:57
S26	9	S25 and "metal fluoride"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 13:58
S27	2584	(502/225-228,231).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/12 14:26
S28	50	S27 and (catalyst with ("metal fluoride" or "metallic fluoride"))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/12 14:26

## EAST Search History

S29	8	("4065280"   "4378987"   "4501602"   "4610708"   "4627865"   "4718929").PN. OR ("5277889"). URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/12 15:28
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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: DELATTRE J.L. ET AL.: 'Plasma-Fluorination Synthesis of High Surface Area Aluminum Trifluoride from a Zeolite Precursor' JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 123, 2001, pages 5364-5365, XP002254993

D2: FR-A-1 383 927 (DU PONT) 4 January 1965 (1965-01-04)

D3: GB 995 186 A (MONTECANTI SOCIETA GENERALE PE) 16 June 1965 (1965-06-16)

D4: US-A-2 959 557 (HANSFORD ROWLAND C) 8 November 1960 (1960-11-08)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims ~~11-18~~ 13-18 is not new in the sense of Article 33(2) PCT.

Claims 11 and 12 are drafted in terms of a "product-by-process" claim. In view of the provisions of Article 64(2) EPC the EPO considers "product-by-process" claims to extend to the product per se. The product thus falls within the general definition of an amorphous metal fluoride. Taking into account the fact that a product is not necessarily new if it is made by a novel process and the interpretation of "product-by-process" claims used by the EPO, the subject-matter of claims 11 and 12 is considered to lack novelty in respect to documents D1-D3, when considered separately.

Document D1 (cf. p.5365 col.1 second paragraph) disclose amorphous  $\text{AlF}_3$  catalysts having high surface area ( $190 \text{ m}^2/\text{g}$ ).

Document D2 (cf. p.9 example 6) describes amorphous aluminum fluoride catalyst for fluorination reactions.

Document D3 (see the examples) describes the preparation of amorphous transition metal fluorides showing catalytic activity and having higher air and moisture stability than the respective starting halides (cf. p.2 l.46-59).

Hence, the subject-matter of claims 13-18 is not novel over the teaching of documents D1 to D3, when considered separately.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

**PCT/EP04/00049**

**Re Item VII**

**Certain defects in the international application**

1. The term "acidic acid" used in claim 3 and in the description on pages 3 and 13 is unclear.
2. The formula for  $\beta$ -aluminum fluoride in Table 1 should be corrected to  $\text{AlF}_3$ .

**Re Item VIII**

**Certain observations on the international application**

1. Although method claims 1 and 10 and product claims 11-13 and 18 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 1, 10-13 and 18 do not meet the requirements of Article 6 PCT.